Sustainable Landscape Workshop
Turfgrass Management

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University of Missouri

Outline:

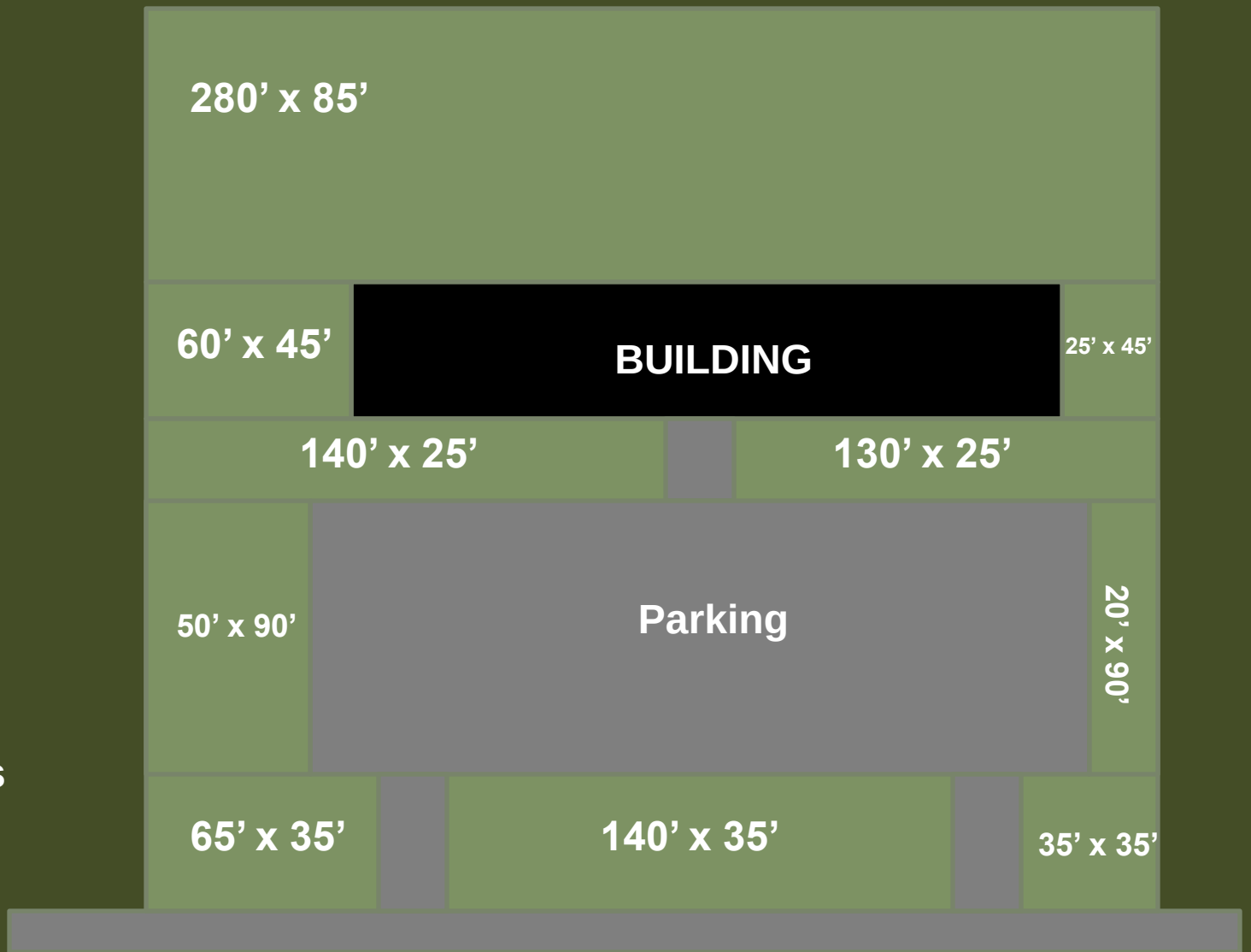
- Things to know about your grounds
- Selecting turfgrasses
- Establishment & overseeding
- Mowing
- Fertility
- Irrigation
- Know why pest exist
- Moles

Measuring Square Footage

23,800 sqft
2,700 sqft
1,125 sqft
3,500 sqft
3,250 sqft
4,500 sqft
1,800 sqft
2,275 sqft
4,900 sqft
1,225 sqft
49,075 sqft

or

1.12 acres



Soil Testing

- Know what **nutrients** are needed: Phosphorus, Potassium, etc.
- Know what the **pH** of the soil is: Do you need to add lime?

Acceptable pH = 6 to 7 for lawns
Optimum pH = 6.4 to 6.8

Turfgrass Selections

- **K-31 Tall Fescue**
  - **Seeding rate: 8 to 10 lbs/1,000 sqft**
- **Blends of turf-type Tall Fescues**
  - **Seeding rate: 7-9 lbs/1,000 sqft**
- **Mixture of turf-type tall fescue (90%) with Kentucky bluegrass (10%)**
  - **Seeding rate: 7-9 lbs/1,000 sqft**

Select Resistant Varieties

Establishment

Fescue/Bluegrass: Sept 1 to Oct 10 is best time (little weed pressure, cool nights/rain, six months of root growth before summer stress

Spring Seeding: Late Feb/early March seeding (can apply Tupersan for crabgrass control)

Seed/Soil Contact

Overseeding

Use a "Power-rake" or "Power-seeder" for Seed/Soil Contact

September for cool-season grasses to increase turfgrass density

Mowing

80% reduction in annual weeds

Higher mowing heights encourage greater root growth of grasses and better competition against weeds.

Mowing

Mow frequently enough to avoid “clumping”.
Never remove more than 1/3 of the leaf blade at a time.

Mowing

Keep mower blades sharp to avoid tearing of leaf blades which results in ugly browning, undue turf stress and a higher potential for turf diseases.

Mowing

Let clippings fall

Other mowing points:

- Mow when the grass is dry
- Mow when the grass is not under stress (i.e. wilting)
- Change your direction of mowing each time you mow

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Nitrogen Application Scheduling

Synthetic Fertilizers

Expressed in pounds of nitrogen per 1,000 sqft

	September	October	November	March/April
Cool-Season Standard	1	1	1	0.5
Cool-Season Low Maint.	1	--	1	--

Cool-Season Turfgrasses:

Tall Fescue, Kentucky Bluegrass, Perennial Ryegrass

Nitrogen Application Scheduling

Organic Fertilizers

Expressed in pounds of nitrogen per 1,000 sqft

	Early April	Late June	Mid Sept.
Cool-Season No Seeding	Corn gluten 0.8-1.2	Corn gluten or other organic 0.4-0.8	Corn gluten or other organic 0.8
Cool-Season Fall Seeding	Corn gluten 0.8-1.2	Corn gluten or other organic 0.4-0.8	Do Not Use Corn gluten when seeding 0.3-0.8

Cool-Season Turfgrasses:

Tall Fescue, Kentucky Bluegrass, Perennial Ryegrass

Organic Fertilizers

A slow-release source of N, other essential nutrients, and organic matter

- **Organica (8-1-1) – Corn gluten**
- **Bradfield (3-1-5)**
- **Ringers (6-1-3)**
- **Sustane (5-2-4)**
- **Richlawn (6-3-2)**
- **Milorganite (6-2-0 w/5% Fe)**

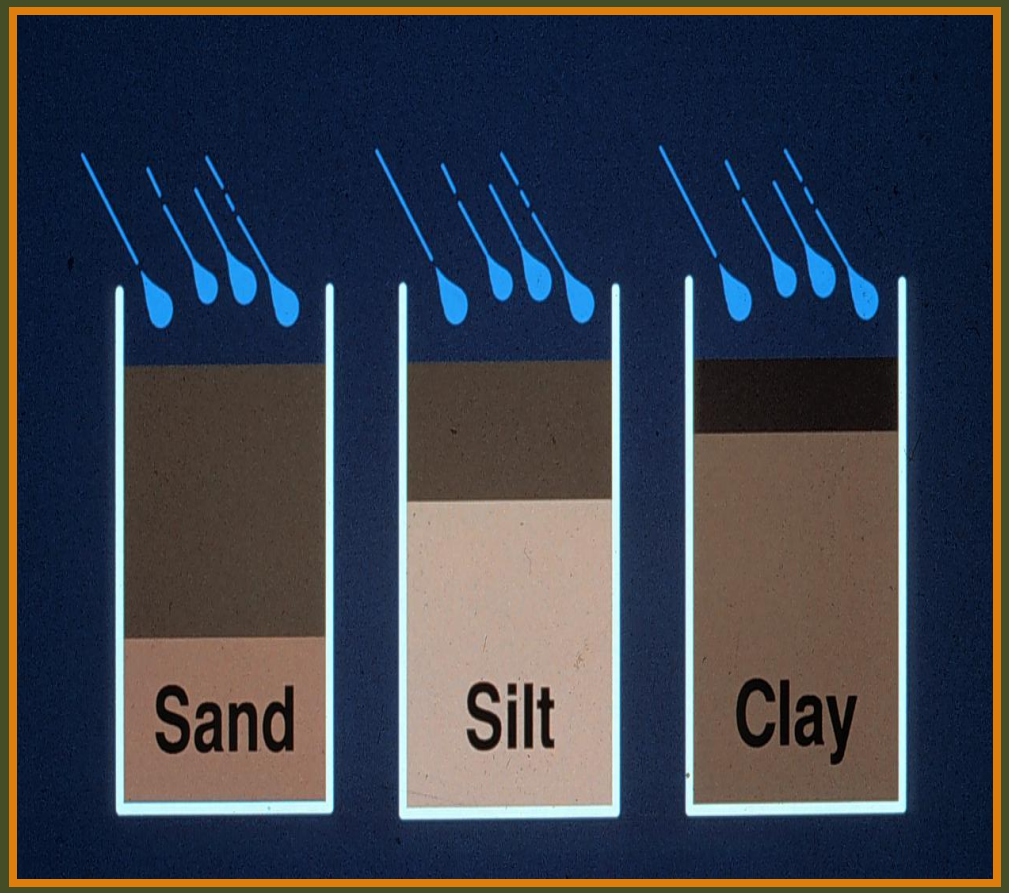
Irrigation: When to water?

Foot prints & wheel marks visible from wilting

Irrigation: How Much?

Know how much water your sprinkler or irrigation system applies

Irrigation: Frequency?



Infiltration Rate:

- **Sand: 2-5 in/hr**
- **Silt/Loam: 0.5-2 in/hr**
- **Clay: 0.2-0.5 in/hr**

Irrigation: What time of day?

Early morning: 4 AM to 8 AM

- Evaporative losses minimized (Cooler temperatures)
- Better distribution of water (Calm winds)
- Knocks dew & guttation fluids off leaf blades and decreases leaf wetness period discouraging fungal growth and infection

Grounds Maintenance

Know Why Pest Exist

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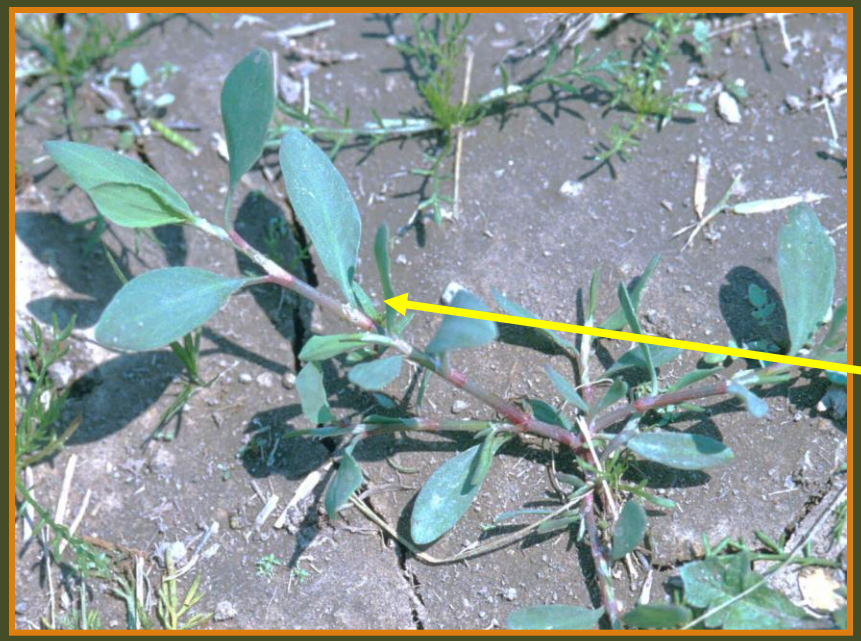
Crabgrass

***Digitaria* spp.**

Summer annual grass

Prostrate knotweed

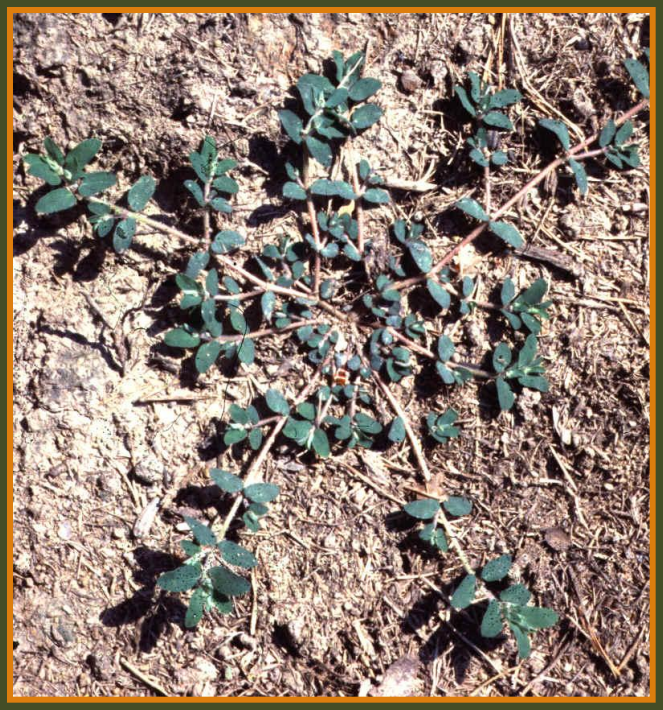
Polygonum aviculare



Summer annual broadleaf

Prostrate spurge

Euphorbia supina



Summer annual broadleaf

Common chickweed

Stellaria media

Winter annual broadleaf

Henbit

Lamium amplexicaule

Winter annual broadleaf

Dandelion

Taraxicum officinale

Perennial broadleaf

Plantains

***Plantago* spp.**

Buckhorn plantain

Broadleaf plantain

Perennial broadleaves

White clover

Trifolium repens

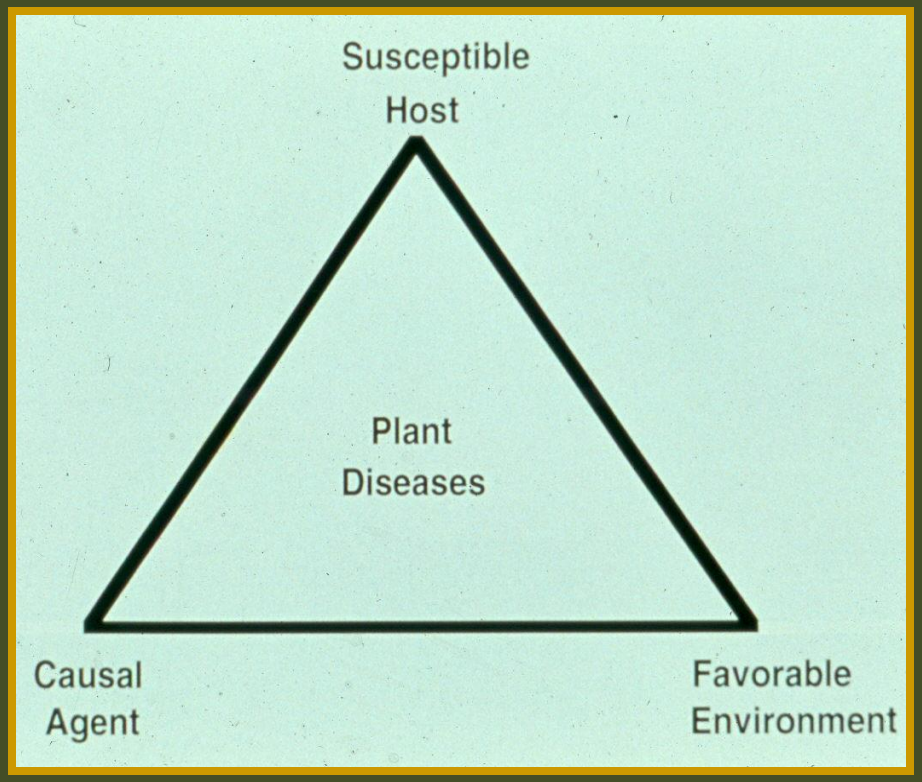
Perennial broadleaf

Violets

Viola spp.

Perennial broadleaf

Diseases of Turfgrass



Think about what you can control to reduce disease potential!

Powdery Mildew:

- Common in the spring and fall when the nights are damp, humid and cool; when days are mild and cloudy.
- Superficial, powdery, white patches of mildew develop on grass leaves, especially in shaded and/or poorly drained soils.
- Diseased leaves turn yellow, wither and die.
- Kentucky bluegrass is most susceptible.

Rusts:

- Problem in warm to hot, dry periods, when grass is growing slowly or not at all.
- Turfgrasses are most susceptible under low fertility, moderate soil moisture stress, heavy dew and frequent light rains.
- Infected grass develops reddish-brown to yellow-orange rust pustules that easily rub off on fingers, shoes and clothing.

Brown Patch:

- Appears in hot, moist overcast weather.
- Tall fescue and other high-cut grasses: patches are light brown and range from 2 feet to 50 feet in diameter. Grass is severely thinned.

White Grubs

May/June Beetle

Phyllophaga spp.

Biology:

- Three year life cycle
- Females lay 20-50 eggs in a lifetime
- Prefers moist soil for egg laying
- Eggs hatch in 3-4 weeks
- Larvae feed first two summers
- 3rd instar larvae feed into fall
- Adults are defoliators

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White Grubs

Masked Chafer
Cyclocephala spp.

Biology:

- One year life cycle
- Lay eggs singly or small clusters
- Prefers moist soil for egg laying
- Eggs hatch in 14-18 days
- Molt to 2nd instar in 3 weeks
- Over-winter below frost line

White Grubs

White Grub

Damage:

5 – 10 per sqft

Late July – early August

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Sod Webworm

Crambus patella

Damage:

- Look for chewed leaf blades
- Pencil-sized holes
- Silken-lined retreats
- Use soap test
- 10-15 larvae/sq yd

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Fall Armyworm

Spodoptera frugiperda

Damage: 1 larva/sq yd

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Chinch Bug

Blissus leucopterus hirtus

Damage: **20-25 nymphs/sq ft**

- **Use coffee can/float method to monitor**

zoysiagrass

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Hunting Billbug

Sphenophorus vernatus vestitus

Damage: **Mainly Zoysiagrass**

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Biggest myth about moles?

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Mole Control:

Do NOT use grub control products for mole control in the spring!

Mole Facts:

- Feed and rest on 2 hr cycle, 24 - 7
- Carnivore
- Earthworms and other insects constitute 85% of their diet
- They consume 70 to 80% of their body weight daily
- Single litter of 2 to 5 young each spring
- Hibernate near large trees through winter

Mole Control:

- Repellants (Caster oil)
- Kaput Mole Bait
- Moletox Baited Gel
- Talpirid
- MOTOMCO Mole Killer
- Tom Cat Mole Killer
- Trapping

Trapping is still the most economical means

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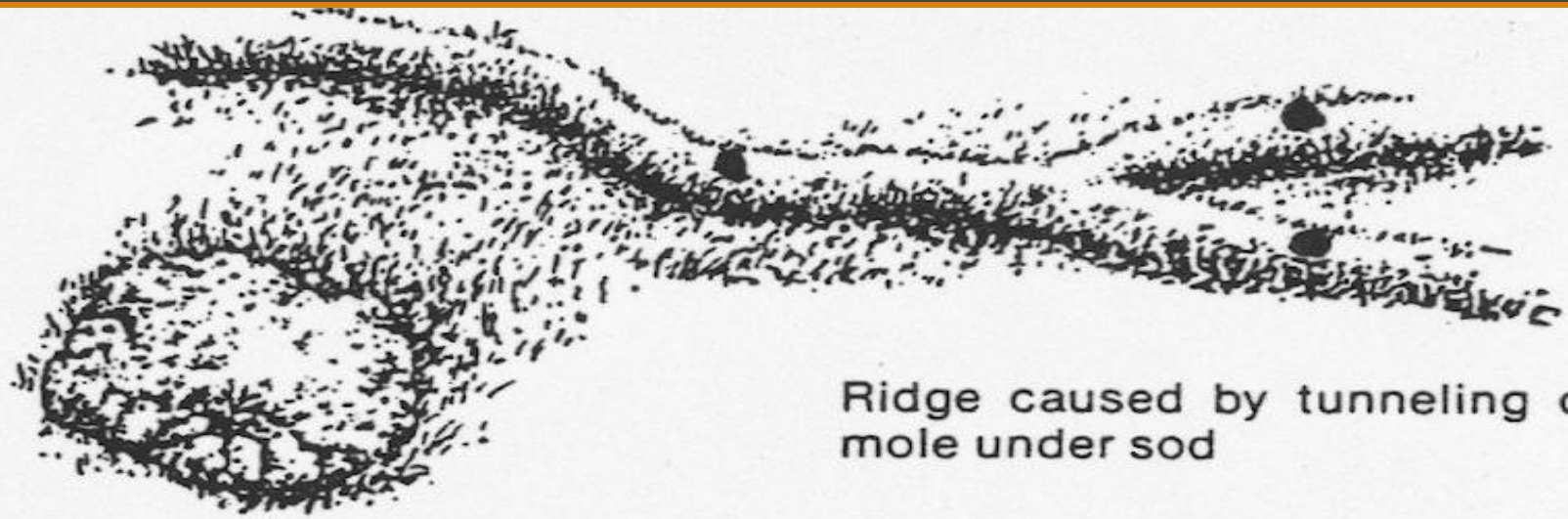
The key to successful trapping and baiting is locating active runways!



Ridge caused by tunneling of mole under sod

Burrow 1 foot per minute

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Questions …

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